

Claims: Cancel all claims of record and substitute new claims as follows:

1. A process, as applied in the field of thermal or chemical fluid process control, for rapidly controlling a process (measured) parameter to a setpoint without overshoot using a continuous time domain polynomial feedback controller comprising of:
 - a. A means for accepting an error signal from an error signal calculator and calculating a continuous type controller output using a user tuned time domain polynomial equation, which includes an nth-order exponent, in a feedback configuration.
 - b. A means for automatically converting to an integral correction for said setpoint for said setpoint maintenance based on user defined criteria; and
 - c. A user selectable means for improving a bias tuning parameter automatically based on user defined criteria.

Whereby, said controller moves said process parameter to said setpoint more rapidly in applications where overshoot is not allowed requiring fewer resources (energy, materials, time, etc.) to achieve said setpoint.

2. A process, as applied in the area of ingredient addition or package filling, using a controller of claim 1. Whereby, said controller improves (reduces) process/product variability when used for ingredient addition into a production batch or process stream or for product filling applications requiring less materials necessary to achieve said setpoint.

Remarks to Amendment A

The Rejection of Claims on 35 USC §112 is Overcome

The claims have been rewritten to include the subject matter to which the patent is applied.

According, the applicant submits, that the claim does comply with 35 USC §112 and therefore requests withdrawal of this objection.

The Rejection of Claims on 35 USC §101 is Overcome

A paper, as published by the ISA, is submitted to be made part of the record. This paper discloses two currently operating uses for this utility.

According, the applicant submits, that the utility does comply with 35 USC §101 and therefore requests withdrawal of this objection.

The Rejection of Claim 1 on Rae and Gruji is Overcome

The claim 1 has been rewritten to define patentability over these references. Applicant requests reconsideration of this rejection for the following reasons:

- (1) There is no justification in these references or other prior art that suggests that these references be combined and said combination goes against traditional control system engineering (Rae's controller operates on a non-linear system; Gruji discussion focuses on a linear system – see Detailed Action Responses above).
- (2) The claim has been rewritten to focus on a controller calculation function that includes an nth-order exponential operation and to eliminate:
 - a) The dependence on the error calculation function.
 - b) The dependence on the function for "shutting down the operation of the heat producing means 23 should the actual temperature of the cooking oil 25 exceed a certain high temperature limit".
- (3) The novel features of claim 1 produce a controller that reduces the resources necessary to move a process (measured) parameter to setpoint over these references and any other prior art separate from the applicant disclosure.